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Liver.*

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RECENT EXPERIENCE WITH TUMORS OF THE LIVER.

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My service at the Woman's Hospital of Philadelphia has afforded me during the past fall and winter opportunity of studying several cases of tumor involving the liver, which have greatly interested me. Some of the cases appear to be quite rare, and in all of them the diagnosis was to me a valuable study. I fortunately was able to secure specimens in each of the cases in which death took place. I shall report the clinical histories somewhat in detail, because of the unusual character of the pathological conditions.

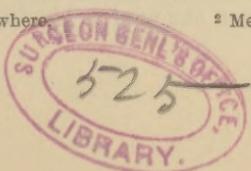
Cystic adenoma of the liver, of probable coccidial origin, treated by incision; one cyst apparently containing gas. This case was reported by me at the meeting of the Philadelphia Academy of Surgery of November 6, 1893, and was subsequently published in the reports of the meeting in various journals.¹ At the time the patient was under my care the exact character of the condition was uncertain. An examination of the specimen, made by Dr. W. M. L. Coplin, and Dr. David Bevan, of the Jefferson Medical College, shows the case to be one of those rare cystic growths of the liver originating from the bile ducts. According to the pathologists just mentioned, the case is a duplicate of that reported by Dr. W. W. Keen in the *Boston Medical and Surgical Journal* of April 28, 1892. In that case an elaborate pathological examination was made by Drs. Coplin and Bevan, and also by Dr. W. T. Councilman, of Harvard University. Unfortunately, the imperfect manner in which I kept the specimen before giving it to the pathologists for examination, prevented their demonstrating the presence of coccidia, as they did in the similar case of Dr. Keen a number of months after their original report was printed.²

Dr. Keen had excised an ovoidal tumor, measuring $3\frac{1}{2}$ by $4\frac{1}{2}$ inches, being $1\frac{1}{2}$ inches thick from the anterior edge of the liver. The patient recovered. In my case the whole liver was riddled with very large cysts, which I first thought might be due to echinococcus.

The woman, a German, aged fifty-six years, presented herself for treatment at the Woman's Hospital, October 2, 1893. She had noticed for ten years a growth in the right side of the abdomen. I found there a large mass occupying the greater part of the right hypochondriac and lumbar regions. The tumor was irregular in outline, and presented near the middle line a marked elevation, with the characteristics, on palpation, of a cyst.

¹ Annals of Surgery, February, 1894, and elsewhere.

² Medical News.



On October 20th I made an incision in the median line through the umbilicus, and came upon a large cystic tumor, and discovered that the liver contained many such cysts. I stitched the most prominent cyst to the abdominal wall and waited a week before evacuating it. I then without ether laid open the most prominent cyst and evacuated several ounces of clear fluid.

Into the cyst cavity thus emptied were projecting one or two distended cysts three-quarters of an inch to an inch in diameter. These were punctured and gave exit to limpid fluid. Directly behind the large cyst first opened appeared to be a second cyst. This I punctured with a knife and evacuated several ounces of fluid. I thought I detected with my finger fluctuation of a similar cyst behind the second cavity, though I could scarcely touch the posterior wall of this second cyst with my finger introduced through the first cyst and through the orifice connecting the two cysts. The sense of fluctuation was so similar to that given by the cystic tumors already punctured that I finally thrust a long trocar into the posterior wall of the second cyst. This operation was done, of course, in the dark. Nothing but fluid blood escaped, and it is, therefore, probable that I punctured healthy liver tissue. The oozing continued while I was occupied in other steps of the operation, and was finally controlled, after a number of cysts had been emptied, by scooping out the clots and packing the deep cyst with iodoform gauze. Altogether I must have evacuated the contents of about three large cysts and five or six smaller ones, puncturing them with a knife thrust in various directions through the intervening cavities that had been laid open. The fluid in all of them was limpid. On the left wall of, and within, the first cyst opened was one of the cysts growing inward, already mentioned. When I punctured this with a knife I heard a whistling noise, as though air had escaped from it. No fluid appeared to be in it, and at first I thought I must have opened the intestine. Careful exploration, however, with my finger showed the cyst to be empty and to have no perceptible opening in its wall except that made by the knife and through which I had introduced my finger. It seems impossible to believe that this cyst contained gas only. A careful investigation of its interior with my finger failed to disprove this supposition. I am forced to believe that it was filled with gas, but cannot understand the occurrence. It was so deep that I could make no examination with the eye.

The irregular cavities left by the evacuation of the cysts' contents were thoroughly washed with hot water and the whole space packed with iodoform gauze. A separate piece of gauze was pushed firmly into the deep cyst, which was being filled, as previously detailed, with blood from the wound in the liver behind. The patient showed comparatively little shock during the operation. She was made much more comfortable and could lie flat on her back. The respiration was much less impeded, and no evidences of sepsis or peritonitis occurred. The packing was not removed until the ninth day. A new gauze packing was then adjusted loosely.

The patient seemed to be slowly convalescing, when a large bedsore formed over the sacrum, notwithstanding the fact that she been kept on a water-bed since before the operation. The temperature was somewhat elevated, but not markedly so. On November 11th, three weeks after operation, she died suddenly and unexpectedly.

The liver was found greatly enlarged, weighing 11½ pounds, and over three-fourths of it was riddled throughout by cysts. One large cyst, opened post-mortem in the right lobe of the liver, was found to contain about a pint of yellowish pus-like fluid. The solid portions of the liver resembled the condition called "nutmeg liver." A stone was felt in the neck of the gall-bladder, and the gall-bladder itself was altered in form as a result of the pressure induced by development of the cysts. The spleen was somewhat enlarged and contained a whitish spot of softened tissue resembling a gummatous tumor. This was incised for examination. Both kidneys were greatly enlarged and riddled with cysts. The uterus and ovaries were found atrophied and non-adherent.

The pleural cavity of the right side was full of serous fluid. The base of the right lung posteriorly was completely consolidated. The left lung showed small areas of consolidation at its base and posteriorly, but was for the most part crepitant. There was no fluid in the pericardial sac.

The heart was pale, very soft and flabby and of normal size. The right ventricle was completely filled by a soft chicken-fat clot. The left ventricle was similarly occupied by a clot which extended into the aorta. The valves were perfect.

I copy a portion of what Dr. Coplin has said in his remarks on the case of Dr. Keen, and append the note saying that this case is identical in its pathological nature.

"Of the cystic adenomata of the liver we know very little, and the confusion is deepened by the fact that the German writers, Ziegler, Klebs, and others, consider cylindrical-celled carcinoma as adenoma, and draw little or no line of differentiation except that of infiltration. The earliest attainable literature is in Klebs, who quotes E. Wagner¹ as having observed in the liver, enlargements, the structure of which resembled the so-called glandular tumors of the mammary gland; Klebs is inclined to think that all adenomata of the liver are malignant, and does not refer to any that at all resemble the present case. Ziegler states that adenoma of the liver may be made up of tubular glands instead of lobules.² Although he lays no stress on these tumors, save in their rarity, he gives a most typical cut presenting the exact histological structure of the present case, and designates the growth as papilliferous cystadenoma. As to the exact origin of these growths, nothing is known. Whether they arise from the ducts or from the liver-cells within the lobules, as Rindfleisch thinks, cannot be demonstrated. The reported cases do not appear at all like the present one; they are solitary cysts disseminated throughout the organ, lined for the most part by pavement epithelium, rarely by cylindrical cells, more rarely by ciliated cells.³ In the latter case one can hardly call it an adenoma or even a cyst."

The pathological report in my case is as follows:

"DEAR SIR: In the report of the histology of the liver we had intended to write anew what we have already said in the case reported by Keen, but think now that we will loan you a reprint of the report. Your case is cer-

¹ Arch. d. Heilk., 1861, S. 471.
² Friedrich: Virchow's Archiv.

³ Path. Anat. and Pathogenesis, Art. 167.

tainly a duplicate. The faulty hardening has precluded our demonstrating the presence of coccidia, as we afterward did in the case reported by Prof. Keen.
Sincerely yours,
COPLIN AND BEVAN."

The following instance of mistake in diagnosis is instructive. What was supposed to be an enlarged and displaced liver was shown by operative incision and autopsy to be a displaced spleen, which occupied a position on the right side of the abdomen directly below the liver.

Dislocated spleen occupying the right iliac region mistaken for an enlarged and displaced liver; radical operation for umbilical hernia; autopsy. A French woman, aged forty-three years, weighing 208 pounds, applied for treatment at the Woman's Hospital on December 13, 1893. The patient had been a widow for five years, and never bore children. Ten years ago, while lifting a heavy wash-tub of clothes, she felt and heard something give way in her abdomen, and soon afterward recognized the presence of a tumor above the navel, in the median line. This tumor increased in size, and was punctured by a physician nine years ago, under local anaesthesia, and several quarts of fluid withdrawn. An ulcerated condition occurred which lasted for four years. About this time she was told she had Bright's disease.

Examination upon admission showed that she passed thirty-two ounces of urine in the twenty-four hours, and that the secretion contained no albumin and no sugar. The heart and lungs presented nothing special. In the median line involving the umbilicus was a large irreducible hernia, very pendulous, and partly constricted at the base. It was about the size of an adult's head. Percussion over it gave tympanitic resonance. A hard tumor could also be felt within the abdomen, extending from the liver region downward and toward the median line, filling the right iliac fossa, and having its lower edge just above the pubes. This tumor seemed to be connected with the liver, and was looked upon as a possible instance of enlarged and displaced liver.

My colleague, Dr. Frederick P. Henry, saw the case, and, I believe, expressed the opinion that the mass felt in the abdomen was a floating liver. Dr. Anna M. Fullerton, the physician in charge of the hospital, was inclined to a similar opinion. The symptoms of dyspnoea, dyspepsia, sub-sternal pain and other symptoms, interfered so much with her comfort and ability to work that I agreed to do a radical operation for the cure of the umbilical hernia. I thought that the operation would also allow a diagnosis to be made of the intra-abdominal mass and permit us to undertake treatment for that condition if it seemed advisable.

After the patient had been in the hospital a month, under careful treatment and repeated observation, I made an incision three inches in the median line into the hernial sac. About eight ounces of serum were evacuated, and the umbilical ring enlarged by dividing it in a downward direction. The caecum, the appendix, and a large portion of the great intestine were found in the hernial sac. In addition, I discovered a small cyst-like body the size of a pea, and perfectly translucent, with a long translucent pedicle not thicker than a stout thread, lying among the extruded intestines. This pedicle, which was over a foot long, had an attachment within the abdomen somewhere below the umbilicus. I could not determine its attachment without making more disturbance of the abdominal contents than seemed proper. I drew it out, tied and excised it, and preserved it for examination.

The hernia was so great and the abdomen so filled with the tumor

already described, extending downward into the right iliac region, that for a time it seemed impossible to replace the intestine within the abdominal cavity. The patient was put for this purpose in the Trendelenburg position. Some coils of intestine which were strongly adherent to each other were returned unseparated. The colon was so distended with gas and fecal matter that I finally opened it by a small longitudinal incision and evacuated its contents. The incision was then repaired by a Lembert suture of fine catgut. The evacuation of gas reduced the bulk of extruded intestine so much that I was then able to replace all the intestines within the abdomen.

After I had reduced the hernia I made an exploration of the abdominal cavity to determine the character of the mass below the liver. Dr. Fullerton and I were able to determine that the liver was in its normal position, and that the mass probably was not attached to that organ. We were not able to feel the spleen in the left hypochondrium, and made a diagnosis of probable floating enlarged spleen. The severity of the hernial operation was so great that I determined to make no attempt at treating this solid tumor, and therefore did not prolong the examination to determine with certainty that no spleen was present in the normal situation. The hernial sac was removed, the ring closed by six interrupted sutures of strong silk, and the external portion of the wound closed.

The intra-abdominal tension, of course, was great, but not excessively so, because of the evacuation of gas through the incision made in the colon.

In the evening the woman's pulse was 92; temperature, 100.4°; respiration, 28. During the night the temperature became normal, but rose in the morning to 100.6°. Her respiration increased in frequency, and the next day reached 54 in the morning, at which time her pulse was 110 and her temperature normal. A rectal tube was passed into the bowel to allow the escape of gas. She was given tonics and stimulants, but died suddenly, about twenty-five hours after operation, with intense dyspnoea.

The autopsy showed the following conditions:

Opening the wound and carrying a median incision downward displayed an enormously distended stomach. The stomach seemed dilated. I am not certain whether this was true dilatation or simply an apparent dilatation, because of the great distention; but I am inclined to believe that the stomach was larger than normal. From the cardiac end of the stomach the gastro-splenic omentum extended downward and to the right, being about six inches in length, twisted, and much thickened. In some places it was two inches in diameter. Attached to it and lying in the right lumbar and iliac regions was a greatly enlarged spleen. The spleen measured ten inches in length, five inches in width, three inches in thickness, and weighed about four pounds. It was adherent to the sigmoid flexure, which had a long meso-sigmoid. The wound of the large bowel, which had been intentionally opened during the operation, was in an aseptic condition and covered with lymph. Lymph was deposited on some of the intestines, which had been contained in the hernial sac, and the adhesions of which had been separated during the operation. There were no signs of septic peritonitis. Attached to the spleen were several filaments or long shreds, somewhat similar to the curious structure removed at the time of operation. It is probable,

however, that the strands attached to the spleen were stretched deposits of lymph. That removed at the operation was certainly not lymph. The surface of the spleen was roughened somewhat, but section of the organ showed nothing special macroscopically except hypertrophy.

The lungs were crepitant, and apparently normal, except that some adhesions existed above and posteriorly upon the right side of the chest.

The uterus contained some fibroid masses and granulations on its posterior wall. A cyst existed in connection with the left broad ligament and ovary. Some granulations were seen distributed over the broad ligaments and ovaries.

The liver was normal in color and seemed uninvolved by any pathological process. The gall-bladder was seven inches in length, and contained 325 small stones. The kidneys to macroscopical examination were normal.

Some serous fluid was found in the pericardium. The heart was full of blood and in a condition of diastole. The tricuspid valve was opaque, but otherwise normal. The mitral valve was similarly opaque and thickened. All the valves appeared to be competent.

Death in this case occurred, it seems to be, from great distention of the stomach preventing the descent of the diaphragm. If we had known the exact condition of affairs, it is possible that passing an oesophageal tube to evacuate the stomach, or aspiration of the stomach through the anterior abdominal wall, would have averted the fatal issue. The fact that the distended stomach was to a certain extent confined behind the lower ribs and their cartilages obscured somewhat the cause of the woman's dyspnoea. Passage of the rectal tube and the administration of hot drinks to aid in the eructation of gas were remedies adopted by the hospital physicians to reduce the abdominal tension. Death occurred suddenly, as if the diaphragm were interfered with excessively at the time. It seems to me probable that the traction on the stomach by the heavy spleen lying on the opposite side of the abdomen, distant from its normal situation, may have twisted the stomach in such a way as to interfere with the escape of gas from the stomach into oesophagus or duodenum.

The next case is one in which an infiltrating tumor of the liver was mistaken by me for a non-malignant growth of the omentum. The pathological nature of the tumor is not known, though exploratory incision proved it to be a hepatic growth. It is possible that it is of syphilitic origin. The patient is now recovering from the section, as will be seen by the following history:

Infiltrating tumor of the right lobe of the liver, causing an elongated process extending below the level of the umbilicus. A married woman, aged twenty-eight years, was admitted for treatment at the Woman's Hospital on January 26, 1894.

Her previous history is not important, except that some time after her marriage, which occurred about eight years previously, a sore ap-

peared on the lower lip. The lip became greatly swollen; and what she calls the "blister" was hard at its base, and covered with a crust. This condition lasted for five months before cure. A physician told her that she had poisoned herself. An eruption occurred shortly after the appearance of the labial sore, and was most marked on the left knee and hand. She states that the sore on her knee did not heal for ten months. Her husband is known to have had a chancre and constitutional symptoms about this time.

Soon after marriage she had one miscarriage, and then bore two healthy children, who are still living.

Ten months ago she observed a small, hard mass above and to the right of the navel; this has rapidly increased in size. The growth was quite painful, but the pain was much relieved, she says, by the application of electricity, administered by Dr. A. H. P. Leuf. On admission the patient had normal pulse, temperature and respiration, and nothing abnormal was found in the heart, lungs, or urine. She was greatly emaciated. There was a white irregular cicatrix in the mucous membrane of the lower lip, and another on the anterior surface of the left knee.

A large flattened mass, two inches and a half by five inches and a half, could be felt in the right side of the abdomen. The mass extended from the right hypochondriac region downward, occupying portions of the epigastric, umbilical, and lumbar regions, its lower border being two inches below the level of the umbilicus. The mass was quite movable, seemed to be loosely attached posteriorly, and presented a convex edge toward the middle line of the body. The examiner's fingers could grasp the edge of the tumor, which seemed to be about an inch thick. A slight irregularity, almost like the hilum of the spleen, could be felt. The tumor extended upward in the direction of the diaphragm and liver, and its edge could be traced to the neighborhood of the ensiform cartilage. Over a circumscribed portion of the tumor there was tenderness on deep pressure, although this was not very marked. Its surface was for the most part smooth, but the thin abdominal wall permitted a slight depression and irregularity to be felt at the point of tenderness. The tumor moved with respiratory efforts.

Because of the clear specific history of the patient, she was given a fifth of a grain of green iodide of mercury before meals, and thirty grains of potassium iodide after meals. The specific treatment was continued for nearly a month, the dose of potassium iodide being diminished and the mercury stopped, as her gums became tender. Her general condition improved, but the tumor did not appear to diminish in size.

The diagnosis of probable gummy tumor of the liver, which I had made when I first saw the case, seemed to me incorrect, as no apparent diminution in the growth occurred, though she was subjected to pretty active medication. Accordingly, after nearly a month's treatment, I advised exploratory abdominal incision. I expected to find a non-malignant tumor of the omentum, for it seemed to me that the growth was not connected with the liver. An incision in the median line allowed me to introduce my finger for exploration. The tumor was found to be an infiltration of the left portion of the right lobe of the liver. The liver was prolonged, as it were, in a great tongue, which reached almost to the crest of the ilium. The abnormal portion was hard, of a mottled grayish appearance. It gave no evidence of being

cystic, and was rather granular upon the surface, though there were no actual elevations, such as might be called granulations. The tumor above had a moderately distinct margin, separating it from the healthy liver structure, though this was not as definite as it would have been in a distinctly encysted or localized tumor. The gall-bladder was situated far down in the right lumbar region, being displaced by the abnormal growth of the overlying portion of the right lobe of the liver. No abnormality in the gall-bladder was noticed.

The facts that the patient had little pain with this growth, that her general health was good, and that a specific history existed, impelled me to make no attempt to remove the disease. Such a procedure would have required an extensive and bloody operation, done with safety only with the actual-cautery knife. It would have been almost impossible to have removed the abnormal tissue without excising the gall-bladder, although it is possible that the gall-bladder might have been peeled away from the overlying tumor. Operation would really have been a resection of a large portion of the right hepatic lobe.

It is a little difficult to say whether the condition is more properly described as an infiltrating tumor of the liver or localized infiltration and hypertrophy of the liver. The wound was closed by means of a continuous catgut suture for the peritoneum, and interrupted silk sutures for the muscular and cutaneous structures. Her convalescence has been uninterrupted, except for some suppuration in the abdominal wall, due probably to an unobserved defect in asepsis. It is now two weeks since operation. I shall, after convalescence from the operation, push with vigor the anti-syphilitic treatment, which has already been renewed in connection with iron.

The patient was subsequently discharged, with the request to report occasionally at the hospital. A note made by one of the clinic physicians three months after the operation states that the tumor was greatly reduced in size. The growth was therefore probably syphilitic.

Single tumor of the liver, in which removal was attempted. The case just described differs from the hepatic tumor which I attempted to remove, that was reported to the Philadelphia County Medical Society, by me, on September 28, 1892. In that case I had found in the right lobe of the liver a single flattened tumor, irregular in outline and about three inches in diameter. It was about an inch and a half thick, and occupied the anterior portion of the right lobe of the liver, directly over the gall-bladder, and involved the edge of the liver, which was thickened by it. There were no adhesions between the tumor and other abdominal contents, and it had a distinct outline where it came in contact with the healthy liver tissue. The surface of the growth was of a dirty brownish-white color, and showed irregular puckering of its peritoneal investment, as though the peritoneum was thickened by chronic interstitial inflammation. Although I believed the tumor to be a malignant one, I considered it a proper case for excision, because there was no other growth discovered in the liver, and no infiltration beyond the distinctly marked borders of the tumor. I began the operation by attempting to separate the gall-bladder from the under surface of the tumor by the thermo-cautery knife. Before I had accomplished this step, quite free hemorrhage occurred from a vein the size of a goose-quill, which was opened by the cautery. At this moment one of the rubber bulbs of the thermo-cautery burst, and as I had no other instru-

ment with me I was obliged to abandon the operation. The patient passed out of my hands after healing of the abdominal incision, and died three months and a half later. Her physician, who unfortunately made no autopsy, wrote me that before death the patient's skin became decidedly yellow, that the tumor, which was very evident through the abdominal wall, had increased in size, and that two or three small tumors were discovered on the back and neck. The patient died from exhaustion. This history would seem to show that my diagnosis of malignancy was correct.

The following case of tumor of the liver, apparently a gumma, is still under treatment. Specific treatment has greatly diminished the bulk of the tumor, and the patient is almost cured.

Hepatic tumor of syphilitic origin improving rapidly under treatment. A married woman, aged forty-eight years, became an out-patient at the Woman's Hospital in November, 1893. She complained of a sense of constriction in the epigastric region, and suffered somewhat from nausea. Palpation of the abdomen showed the presence of a tumor somewhat nodular in character, lying in the middle line between the right and left costal margins and about an inch below the ensiform cartilage. The mass was about the size of a woman's fist, hard, and seemed to be connected with the liver. A diagnosis of tumor of the liver, probably malignant, was made. The patient stated that during last summer she had some diseased bone removed from the back, near the lower angle of the right scapula; at this point a scar was visible. Neuralgic pains developed after the operation, in the back and right arm. She had not full motion of the arm at the shoulder.

Believing that the case was possibly one of syphilitic disease, I gave her a fifth of a grain of green iodide of mercury before meals, and twenty grains of potassium iodide after meals. The symptoms immediately began to ameliorate, and the tumor promptly diminished in size. In one month's time the patient felt quite sure, as did I, that marked diminution in the bulk of the tumor had occurred. In January the potassium iodide was increased to thirty grains, three times a day, whereas the green iodide of mercury was continued in the rather small dose of one-fifth of a grain three times a day. The mercury was not pushed more vigorously because the patient was a dispensary case and reported only once a week. I was a little afraid that salivation might occur during the week, and do harm before the patient reported.

In February I increased the green iodide to a third of a grain, giving a little tannic acid with each pill, as I usually do. Up to this time no salivation had occurred. Once or twice the treatment was suspended for a few days, because of the fear of salivation.

I saw this patient a week ago, when the tumor could be felt as a small nodule, scarcely larger than a walnut. Her general health is much improved, and her arm, which had previously been somewhat stiff at the shoulder, is more movable. The diagnosis of syphilitic gumma has, therefore, been confirmed by treatment, and the patient will doubtless completely recover.

Several months' observation confirmed this statement.

The last of this group of patients treated at the Woman's Hospital gave very little opportunity for diagnosis, because she was admitted in

an almost dying condition, and the indication to open a large abscess coming from within the abdomen was so urgent that no attempt at a careful diagnosis was made. The existence of a large perforation between the stomach and the gall-bladder, which was the seat of a colloid tumor, makes it remarkable that life should have been prolonged as it was.

Colloid tumor of the gall-bladder with perforation of the stomach, abscess and general peritonitis. A German woman, aged seventy-four years, was admitted on September 22, 1893, with the history of having been in poor health for six or seven years. Four years previous to her admission she had experienced pain in the region of the liver, which was followed two years later by a chronic cough, which still exists. About a year previous she had observed a hard lump in the region of the liver, and she became the subject of diarrhoea. The connection of the diarrhoea with the hepatic disease is not established. About a week before admission a swelling became very noticeable to the right of the umbilicus, and was accompanied by severe pain. The patient suffered greatly with dyspnoea, slept poorly, and was unable to eat. In addition to the diarrhoea mentioned above, she had had vomiting at intervals for about two years.

Physical examination showed the heart's action to be irregular and feeble. There was dulness on percussion over the infra-clavicular region of the right side. Expiration was high-pitched and prolonged over the left lung. The patient's breath was exceedingly offensive and somewhat sweetish in odor. The abdomen was greatly distended, and a mass was found within the abdomen, extending from the margin of the ribs to below the level of the anterior-superior spinous process of the ilium on the right side. There was bulging in the right flank, with resistance on palpation. There was a small area of tympany at the border of the ribs on the right side. The abdominal wall over the mass was reddened, and showed fluctuation and pointing as of an abscess. The parts were tender to the touch. The patient's condition was so critical that it was doubtful whether she would stand ether, but it seemed to me important to at once open the abdominal abscess. After cleansing the skin, an incision was made in the fluctuating mass, and a large quantity of very foul pus and gas evacuated. The operation was done hastily, with the patient in the semi-erect posture, without general anaesthesia. The cavity was washed out with sublimate solution, 1:5000, an antiseptic dressing applied, and the patient put to bed. Strychnia and quinia were given. The bowels were moved during the afternoon, the passages being offensive, of light color, thin, and watery. The dyspnoea was improved by the operation, but the condition of the patient continued very critical. She frequently vomited, and the evacuations of the bowels had the character of diarrhea, and were tinged with blood. Stimulants and tonics were unavailing, and she died two days after operation.

An autopsy was made and disclosed the fact that the abscess cavity which I had incised had no direct connection with the general peritoneal cavity. An incision made in the median line from the ensiform cartilage to the symphysis of the pubes opened the abdominal cavity and disclosed the fact that the omentum and intestines were adherent to the abdominal parietes upon the right side. It was evidently this plastic peritonitis which had walled in the abscess cavity. Many adhesions ex-

isted between the various abdominal viscera. The stomach was greatly dilated, and was displaced downward by adhesions to a tumor the size of an infant's head, apparently developed from the gall-bladder. The omentum and intestines were firmly adherent to this tumor, which was found on subsequent examination to be the gall-bladder greatly enlarged and altered by a colloid growth. An opening large enough to admit three fingers existed between the greatly enlarged gall-bladder and the stomach. The opening entered the stomach near its pyloric extremity. The liver was enlarged, had undergone fatty degeneration, and was adherent by its entire anterior surface to the abdominal wall. The spleen was enlarged and softened. The peritoneum was dry and opaque, and its parietal and visceral layers adherent to each other in many places. There was no fluid in the peritoneal cavity. The pelvic viscera appeared to be normal. The lungs were collapsed and softened, with the lobes adherent to each other. The right apex was consolidated. Adhesions of the pleura were present, and the mediastinum was full of calcareous masses of dark color, which appeared to be altered mediastinal glands. The heart had a hypertrophied left ventricle, and showed dilatation of the right ventricle. The kidneys seemed normal.

Gummy tumors of the liver, in which over thirteen grains of green iodide of mercury were taken every day with benefit. During last spring I treated at the Methodist Hospital a patient with syphilitic tumors of the liver, which is interesting to record in connection with these cases.

The man, who was aged twenty-five years, had contracted syphilis two years previously. He had been sick a number of months before I saw him. He was much emaciated and had an exceedingly large liver, upon which was one especially prominent protuberance in the epigastrium. This growth was hard, not tender, and the seat of little or no pain. The patient, however, had become accustomed to the use of morphia for sleeplessness and pain in the back. The bulky liver, which extended down to the navel, made so much pressure upon the aorta that its pulsations were transmitted to it. The patient's heart, lungs, and urine showed nothing abnormal.

He came under my care, through the courtesy of Dr. H. C. Paist, in April, and was at once put upon potassium iodide, gr. x.; corrosive sublimate, gr. $\frac{1}{24}$, three times a day. The potassium iodide was increased, until at the end of April he was taking fifty grains three times a day, and corrosive sublimate, gr. $\frac{1}{8}$, three times a day. These drugs were varied in amount in accordance with the condition of the patient's stomach, which even before he began such active treatment was somewhat irritable, the result, perhaps, of the pressure upon the stomach exerted by the enormous gummatus liver. This organ I believed to be the seat of numerous gummy growths.

About the 1st of May mercurial inunctions were begun night and morning, and the green iodide of mercury, gr. $\frac{1}{4}$ four times a day, substituted for the corrosive sublimate. Later the mercurial inunctions were increased to four times a day, and a quarter of a grain of the green iodide of mercury given six times a day. A short time later I stopped entirely the potassium iodide, which he had been taking from April 23d to May 16th, in doses of forty to sixty grains three times a day, separated from the nearest dose of the mercurial salt by a meal, so that no possible chemical reaction should take place between them.

The potassium iodide seemed to irritate his stomach more than the

green iodide of mercury. It was, therefore, stopped on May 16th, and I decided to push the mercury, both by inunction and by the stomach. He was also given milk punch, strychnine, and quinine. By the 21st of May he had, by gradual stages, reached the dose of a grain and a half of the green iodide of mercury every two hours during night and day; for it seemed to me that unless we could rapidly diminish the size of the liver he was destined to perish. The inunctions with ointment of mercury were continued with the medication by the mouth. Tannic acid was given to prevent purging. A marked decrease in the bulk of the organ and in the prominence of the chief tumor took place during this active specific treatment. The diminution of the most prominent tumor was particularly evident. This was very gratifying to me, because the progressive emaciation of the man permitted better exploration by palpation of the growth. That it should be evidently smaller to my touch, though the belly wall over it was thinner, showed me that the decrease in size was very great. He had, however, recently become jaundiced, and though not confined to bed, or even to the house, was very weak. There was no special rise of temperature, but the dyspeptic symptoms, of which he had always complained, persisted to a certain extent. He died on June 16th, after having developed, subsequently to the occurrence of jaundice, marked ascites. For this condition he was aspirated, by one of my colleagues then on duty in the ward, in the middle of June, and a gallon and a half of fluid removed from the peritoneal cavity.

At the time of death, the tumor, according to the resident physician's notes, had diminished so much that there was a space of three inches between its lower edge and the upper margin of the navel. At the time of his admission the same notes show that it extended to that point. There was, during this time, a corresponding diminution of the general bulk of the liver, which upon his admission was enormous.

The case was interesting to me because of the great amount of iodide of potassium he took without coryza, and the astonishingly large doses of green iodide of mercury administered without causing salivation. Some of the night doses were omitted when he was asleep, but he received over thirteen grains of the iodide of mercury during the twenty-four hours, with benefit, and no special discomfort. The amount of mercury absorbed by the skin from the inunction is unknown. After taking this large quantity for six days, the same dose—namely, a grain and a half—was given every four hours for twelve days. The records kept at the latter part of his illness do not give a very definite account of the case, but it appears as if the anti-syphilitic treatment were discontinued for about one week before his death. I, myself, had not charge of the case after the end of May. The jaundice and dropsy were evidently due to pressure on the bile vessels and portal venous system, possibly the result of a cicatrizing sclerosis.

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